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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,825	09/16/2003	Harvey L. Berger	12-1199	8905
26294 7590 07/02/2007 TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P. 1300 EAST NINTH STREET, SUITE 1700 CLEVEVLAND, OH 44114			EXAMINER EJAZ, NAHEED	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 07/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/686,825

Applicant(s)

BERGER ET AL.

Examiner

Naheed Ejaz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/15/2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.
2. With respect to claim 2, Applicant argues: "Pergande provides no teaching that the phase of the UWB signal is related to the bit value that is encoded therein" (Remarks, dated: 02/15/2007, page # 8, numeral III, paragraph # 3). This is not persuasive since Pergande reference is not used to reject the above-mentioned limitations (see Office Action, dated: 11/15/2006 claims 1 & 2 rejections, pages 3 to 5)).

***Response to Amendment***

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claims 1, 3-5 features as mentioned below must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
  - With respect to claim 1, features of encoding of binary data and detection of UWB pulses using a zero-amplitude sensing threshold are not shown in the drawings.
  - With respect to claim 3, features of sensing whether carrier phase is inverted or not and adjustment of the polarity of unidirectional signal are not shown.

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- With respect to claims 4 & 5, subject matter of claims are not shown in drawings.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. (7,010,056) (hereinafter, McCorkle) in view of Nielsen (2004/0179631).

6. As per claim 1, McCorkle teaches, 'encoding binary data of one value type as positive UWB pulses and binary data of the other value type as negative UWB pulses' (figures 5a & 5b, col.17, lines 7-41).

McCorkle does not detect the presence of positive and negative UWB pulses using a zero-amplitude sensing threshold, thereby increasing immunity to noise.

Nielsen teaches, 'detecting the presence of positive and negative UWB pulses using a zero-amplitude sensing threshold (figure 2, element 16, page # 2, paragraphs # 0025 & 0026) (it is noted that Nielsen is using zero threshold detector 16 (figure 2) (claimed zero-amplitude sensing threshold) in order to generate binary value "1" if the input signal is greater than zero (claimed detection of positive UWB pulse) and generating "0" if the binary value is less than zero (claimed detection of negative UWB pulse), thereby increasing immunity to noise' (figures 7 & 8, page # 3, paragraphs # 0031-0036) (it is noted that in the mentioned paragraphs Nielsen is calculating binary samples  $r_p(m,n)$  after detecting them through zero threshold comparator (page # 3, paragraph # 0030). Moreover, he uses these samples in order to derive the test statistics Z efficiently and attain the lowest probability of error (page # 6, paragraphs # 0098-0104) by distinguishing signal with noise and without noise (figures 7 & 8, page # 7, paragraphs # 0113-0117) which is equivalent to the claim limitations of 'increasing immunity to noise')

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It would have been obvious to one of ordinary skill in the art, at the time invention was made, to implement the teachings of Nielsen into McCorkle in order to detect binary values of Ultra wideband signals without using AGC (automatic gain control) by using zero threshold comparator as taught by Nielsen (page # 2, paragraph # 0025) thus simplify circuitry and obtain manageable high speed processing (page # 2, paragraph # 0010, lines 1-4).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCorkle et al. (7,010,056) (hereinafter, McCorkle) in view of Nielsen (2004/0179631), as applied to claim 1 above, and further in view of Pergande (6,512,474).

8. As per claim 2, McCorkle and Nielsen teach all the limitations in the previous claim on which claim 2 depends but they fail to disclose UWB pulses includes carrier signal and each of the negative UWB pulses has its carrier phase inverted.

Pergande teaches, 'each of the UWB pulses includes a carrier signal' (figure 2, col.3, lines 57-59) and 'each of the negative UWB pulses has its carrier phase inverted' (col.1, lines 56-57, col.3, lines 53-64) (it is noted that Pergande discloses the ultra wide band signal 202 (figure 2) which includes carrier frequency (col.3, lines 57-59) (claimed 'UWB pulses includes a carrier signal). Furthermore, it is noted that he inverts phase every cycle in order to have the energy in the desired transient electromagnetic fields (col.3, lines 53-57) (claimed 'each of the negative UWB pulses has its carrier phase inverted' (figure 2, from 0 to  $1 \cdot 10^{-9}$  & from  $1 \cdot 10^{-9}$  to  $2 \cdot 10^{-9}$ ) (also it is inherent that negative pulse has it's phase inverted with respect to positive pulse)).

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It would have been obvious to one of ordinary skill in the art, at the time of invention, to implement the teachings of Pergande into McCorkle and Nielsen in order to make sure that energy is in the desired transient electromagnetic fields by inverting the phase as taught by Pergande (col.3, lines 53-64).

***Allowable Subject Matter***

9. Claims 3-5 are objected to as being dependent upon a rejected base claims, claims 1 & 2, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Richards et al. (6,539,213) teach system and method for impulse radio power control.
- Thor (3,216,013) discloses pulse compression radar system utilizing logarithmic phase modulation.

***Contact Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naheed Ejaz whose telephone number is 571-272-5947. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Naheed Ejaz  
Examiner  
Art Unit 2611

NE  
5/10/2007

   
JAY K. PATEL  
SUPERVISORY PATENT EXAMINER